Science Flight Report
Operation IceBridge Arctic 2012

Flight: F39
Mission: Cape Alexander 01

Flight Report Summary

Aircraft	**P-3B (N426NA)**
Flight Number	40
Flight Request	12P006
Date	Thursday, May 10, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission Cape Alexander 01
Take off time	11:00 Zulu from Thule Air Base (BGTL)
Landing time	18:23 Zulu at Thule Air Base (BGTL)
Flight Hours	7.6 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None.
Accomplishments	• Low-altitude survey (1,500) of glaciers and ice sheet profiles. • ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines. • Pitch maneuvers for snow and Ku-band radar calibration. • Two ramp passes at Thule Air Base for ATM calibration at 1,500 and 2,000 ft AGL.
Geographic Keywords	Tracy Glacier, Heilprin Glacier, Melville Glacier, Cape Alexander
Satellite Tracks	0250, 1351, 0116, 0235, 0354, 1336, 0101, 0220, 1321, 0086, 0211, 0092, 1327, 0226, 0107, 1342
Repeat Mission	None.

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	☑	☒	☒	74 GB	None
MCoRDS	☑	☒	☒	1.9 TB	None
Snow Radar	☑	☒	☒	713 GB	None
Ku-band Radar	☑	☒	☒	713 GB	None
Accumulation Radar	☑	☒	☒	200 GB	None
DMS	☑	☒	☒	68.8 GB	None
KT-19 Skin Temp.	☑	☑	☑	9.5 MB	None
Gravimeter	☑	☑	☑	1.5 GB	None
Magnetometer	☑	☑	☑	515 MB	None

Mission Report (Michael Studinger, Mission Scientist)

This is a new mission, designed for three purposes. First, we refly the centerlines of the Tracy and Heilprin Glaciers, and we fly a new centerline up the Melville Glacier. Second, we fly a coastal flux line on the south side of the Cape Alexander ice lobe, where a number of marine-terminating glaciers drain the ice lobe. Finally we fly an extensive grid of both ascending and descending ICESat ground tracks over the entire ice lobe.

Things were going well and we were able to add a few glaciers south of Thule before landing that are part of a mission NW Glaciers that is slightly too long to fly within the Thule operating hours. It was good to get these done.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both ATM systems worked well and collected good data along the entire line in often cloud free conditions. ATM collected a total of 7.0 hours of science data with 100% coverage.

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars worked well.

Accumulation radar: Worked well today.

Gravimeter: Worked well.

Magnetometer: Worked well and used the SGL data logger today without problems.

DMS: DMS worked well.

KT-19 skin temperature sensor: System worked well.

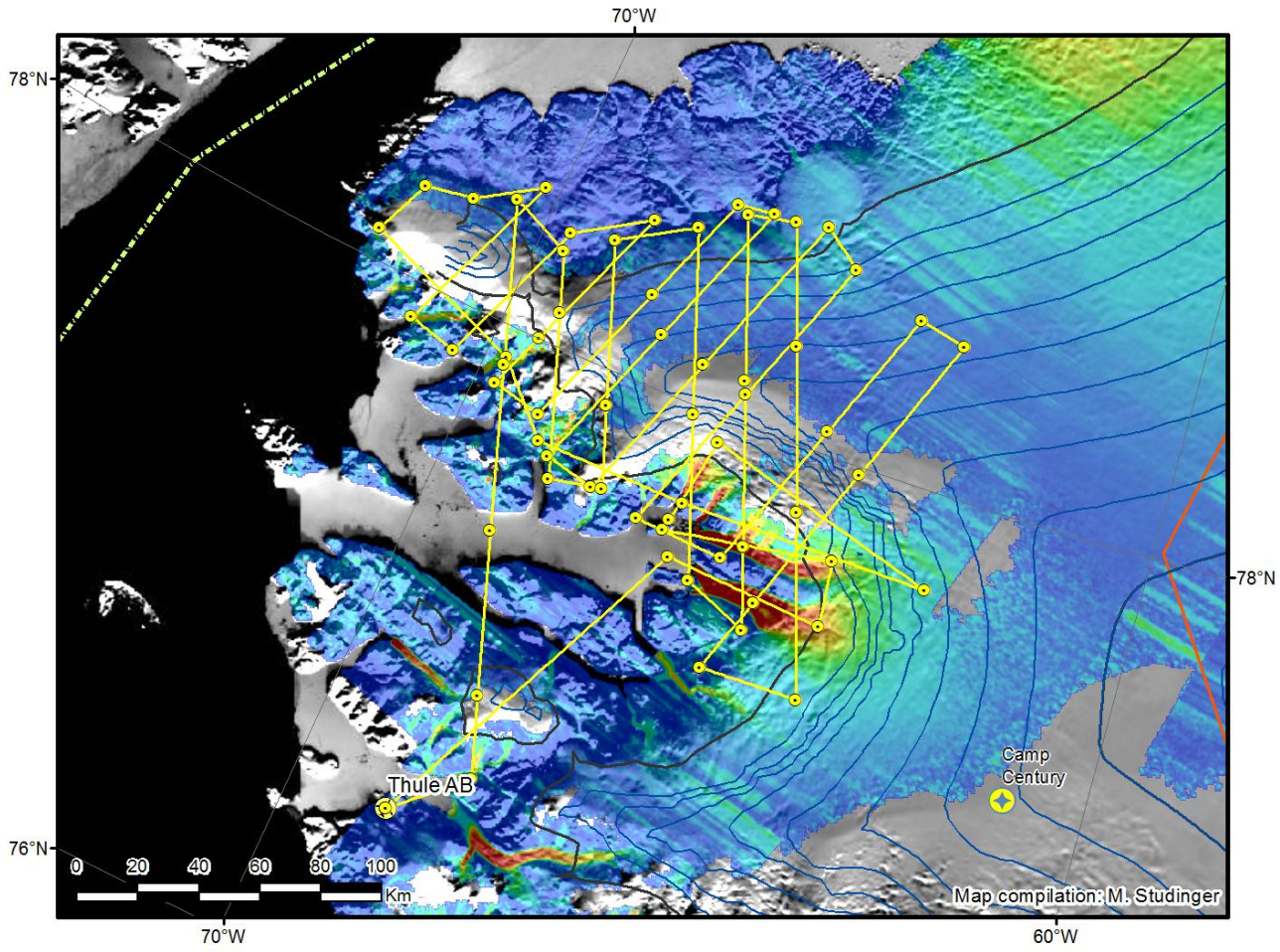

Figure 1: Today's mission plan in yellow. We also added several glaciers near Thule that are part of the NW Glaciers mission.